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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,156	03/08/2007	Domenico Romiti	9526-91 (189371)	2908
30448 AKERMAN SENTERFITTT P.O. BOX 3188 WEST PALM BEACH, FL 33402-3188	7590 09/07/2010		<div>EXAMINER</div> <div>LEO, LEONARD R</div>	
			<div>ART UNIT</div> <div>3744</div>	<div>PAPER NUMBER</div>
			<div>NOTIFICATION DATE</div> <div>09/07/2010</div>	<div>DELIVERY MODE</div> <div>ELECTRONIC</div>

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip@akerman.com

### Office Action Summary

**Application No.**

10/596,156

**Applicant(s)**

ROMITI, DOMENICO

**Examiner**

Leonard R. Leo

**Art Unit**

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

The amendment filed on August 26, 2010 has been entered.

Claims 1-6 and 8-12 are pending.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gandolfi et al in view of Nagano.

Gandolfi et al (page 18, first paragraph) discloses the tubes are composed of titanium, but does not disclose a hot-drawn or welded layer of zirconium.

Nagano discloses a protective coating for titanium comprising zirconium for the purpose of preventing corrosion.

Since Gandolfi et al and Nagano are both from the same field of endeavor and/or analogous art, the purpose disclosed by Nagano would have been recognized in the pertinent art of Gandolfi et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Gandolfi et al a zirconium coating on the titanium tubes for the purpose of preventing corrosion as recognized by Nagano.

To hot-draw or weld the layer of zirconium as taught by Nagano onto the titanium tubes of Gandolfi et al is considered to be an obvious design choice, producing no new and/or unexpected results. Furthermore, it would have been obvious to one of ordinary skill in the art to use a known technique to improve similar devices in the same way. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007)

Regarding claim 2, it would have been obvious to one of ordinary skill in the art to employ the zirconium coating on either the inside or outside of the titanium tube depending on which surface requires corrosion protection with respect to the intended working fluids.

Regarding claim 3, the specific titanium tube and zirconium coating thicknesses are considered to be an obvious design choice, producing no new and/or unexpected results. One of ordinary skill in the art would employ any desired tube and coating thicknesses to achieve a desired heat exchange, pressure resistance, wear ability, etc.

Regarding claims 4-6, Gandolfi et al (page 8, lines 4-22) discloses a portion of the tubes may be corrosion protected where the working or process fluid is at its maximum aggressiveness. One of ordinary skill in the art would employ any portion of the tube with the protective layer to achieve a desired amount of corrosion resistance.

Regarding claims 9-10, Gandolfi et al (Figure 3, page 24, lines 2-6) discloses a carbon or stainless steel tube plate 22 with a titanium layer 23. The specific titanium layer thickness is considered to be an obvious design choice, producing no new and/or unexpected results. One of ordinary skill in the art would employ any desired layer thickness to achieve a desired corrosion resistance, wear ability, etc.

Regarding claims 11-12, the recitations of “for the decomposition of ammonium carbamate in an urea production plant” and “for the condensation of ammonia and carbon dioxide into ammonium carbamate in an urea production plant” are considered to be statements of intended use, even if claimed, does not merit patentable weight unless the body of the claim refers back to, is defined by, or otherwise draws life and breadth from such intended use. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

### ***Response to Arguments***

Applicant's arguments have been fully considered but they are not persuasive.

Applicant incorrectly states, “*The Office Action asserts that there is no difference between the claimed bonding of a zirconium coating onto a titanium tube metallurgically or through welding terms and the electrolytical deposition of zirconium on a titanium surface as taught by Nagano.*” The previous and instant Office actions recognize there are structural differences between the various bonds. However, to employ one variant of known bonding over another is obvious and unpatentable. As further noted, it would have been obvious to one of ordinary skill in the art to use a known technique to improve similar devices in the same way. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007) As disclosed (page 12, see next page), the zirconium coating on the titanium tube is “preferably” bonded by way of example by hot-drawing or welding, which are also disclosed as known techniques. Applicant does not disclose any problem existing in this art in bonding titanium and zirconium. Therefore, there is no novelty in the specific bonding. The novelty of the invention is the combination of the two materials, titanium and zirconium. Thus, one of ordinary skill in the art of bonding metals would

have the knowledge to employ any known techniques to bond the materials by the combination of Gandolfi et al and Nagano.

According to a further particularly advantageous aspect of the present invention, the titanium tube 14a and the zirconium coating layer 25 are preferably bonded together metallurgically, for example by hot-drawing, or through welding. In this way, a strong, stable and long-lasting link is obtained between the two metals, which makes it practically impossible for them to detach even when subjected to the most extreme operative conditions, thus ensuring continuous resistance to corrosion. This is made possible in particular thanks to the similar chemical/physical properties of titanium and zirconium (and of their alloys), which makes them compatible for this type of assembly. Advantageously, the hot-drawing or the welding of the tube according to the invention is realized by using per se known techniques.

No further comments are deemed necessary at this time.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Leonard R. Leo/  
PRIMARY EXAMINER  
ART UNIT 3744

September 2, 2010